

AMENDMENTS TO THE CLAIMS:Listing of the claims.

1. (currently amended) A monoclonal antibody specific for a purified human colon carcinoma-associated protein antigen, wherein said antigen has the following characteristics:

- (a) ~~said antigen is purified to the extent that the membrane fractions are free of HL-A antigen and are substantially free from non-immunogenic glycoprotein fractions~~ said antigen is purified to the extent that the membrane fractions are free of HL-A antigen and are substantially free from non-immunogenic glycoprotein fractions;
- (b) said antigen is not detectable on normal colon cancer free human tissues;
- (c) said antigen is not detectable on human carcinoma cells other than colon carcinoma cells;
- (d) said antigen is specifically immunogenic in humans; and
- (e) said antigen induces an immune response in humans having colon carcinoma which is expressed as cell mediated immunity.

2. (previously presented) An antibody according to claim 1 which is mouse monoclonal antibody 33.28 (ATCC HB-12315) or an antibody which binds specifically to a colon carcinoma-associated epitope that specifically binds to monoclonal antibody 3328.

3. (previously presented) An antibody according to claim 2 wherein said colon carcinoma-associated antigen is a protein having a molecular weight of about 61.1 kilodaltons.

4. (previously presented) An antibody according to claim 1 which is mouse monoclonal antibody 31.1 (ATCC HB-12314) or an antibody which binds specifically to a colon carcinoma-associated epitope that specifically binds to monoclonal antibody 31.1.

5. (previously presented) An antibody according to claim 4 wherein said colon carcinoma-associated antigen is a protein having a molecular weight of about 72 kilodaltons.

6. (previously presented) An antibody according to claim 2 wherein said colon carcinoma-associated antigen is a glycoprotein, the protein component having a molecular weight of 61.1 kilodaltons.

7. (previously presented) An antibody according to claim 1 immobilized on a solid phase.

8. (previously presented) An antibody according to claim 1 which is detectably labeled.

9. (previously presented) An antibody according to claim 8 wherein said detectable label is a radio label.

10. (previously presented) An antibody according to claim 1 conjugated to a cytotoxic radionuclide.

11. (previously presented) An antibody according to claim 1 conjugated to a cytotoxic drug.

12. (previously presented) An antibody according to claim 1 conjugated to a cytotoxic protein.

13. (previously presented) A composition comprising an antibody according to claim 10 in combination with a pharmaceutically acceptable carrier.

14. (previously presented) A composition comprising an antibody according to claim 11 in combination with a pharmaceutically acceptable carrier.

15. (previously presented) A composition comprising an antibody according to claim 12 in combination with a pharmaceutically acceptable carrier.

16. (previously presented) A monoclonal antibody against the monoclonal antibody of claim 1.

17. (previously presented) A monoclonal antibody against the monoclonal antibody of claim 2.

18. (previously presented) A monoclonal antibody against the monoclonal antibody of claim 3.

19. (previously presented) A monoclonal antibody against the monoclonal antibody of claim 4.

20. (previously presented) A monoclonal antibody against the monoclonal antibody of claim 5.

21. (previously presented) A monoclonal antibody against the monoclonal antibody of claim 6.

22. (previously presented) An immunoassay for detecting a colon carcinoma-associated antigen which binds to mouse monoclonal antibody 33.28 (ATCC HB-12315) in a sample comprising:

(a) contacting said sample with an effective binding amount of the antibody according to claim 1; and

(b) detecting said antigen by detecting the binding of the antibody to the purified colon carcinoma-associated protein antigen.

23. (previously presented) An immunoassay for detecting a colon carcinoma-associated antigen which binds to mouse monoclonal antibody 31.1 (ATCC HB-12314) in a sample comprising:

(a) contacting said sample with an effective binding amount of the antibody according to claim 1; and

(b) detecting said antigen by detecting the binding of the antibody to the purified colon carcinoma-associated protein antigen.

24. (previously presented) A method for diagnosing colon cancer in humans comprising:

(a) removing a histological specimen from a patient suspected of having a colon cancer;

(b) contacting the specimen with monoclonal antibody 33.28 (ATCC HB-12315);

(c) staining the specimen with an immunohistochemical stain; and

(d) detecting the presence of the antigen-antibody complex by the stain.

25. (previously presented) A method for diagnosing colon cancer in humans comprising:

(a) removing a histological specimen from a patient suspected of having colon carcinoma;

(b) contacting the specimen with mouse monoclonal antibody 31.1 (ATCC HB-12314);

(c) staining the specimen with an immunohistochemical stain; and

(d) detecting the presence of the antigen-antibody complex.

26. (previously presented) A method according to claim 24 wherein the stain is an avidin-biotin immunoperoxidase stain.

27. (previously presented) A method according to claim 25 wherein the stain is an avidin-biotin immunoperoxidase stain.

28. (previously presented) A kit for the immunohistochemical detection of colon carcinoma comprising:

(a) mouse monoclonal antibody 31.1 (ATCC HB-12314);

(b) reagents for immunoperoxidase and secondary antibody;

(c) immunoperoxidase; and

(d) colorizing reagents.

29. (previously presented) A kit for the immunohistochemical detection of colon carcinoma comprising:

(a) mouse monoclonal antibody 33.28 (ATCC HB-12315);

(b) reagents for immunoperoxidase and secondary antibody;

(c) immunoperoxidase; and

(d) colorizing reagents.

30. (currently amended) A compartmentalized kit for detection of a human colon carcinoma-associated antigen, wherein the antigen has the following characteristics:

- (a) ~~said antigen is purified to the extent that the membrane fractions are free of HL-A antigen and are substantially free from non-immunogenic glycoprotein fractions~~ said antigen is purified to the extent that the membrane fractions are free of HL-A antigen and are substantially free from non-immunogenic glycoprotein fractions;
- (b) said antigen is not detectable on normal colon cancer free human tissues;
- (c) said antigen is not detectable on human carcinoma cells other than colon carcinoma cells;
- (d) said antigen is specifically immunogenic in humans; and
- (e) said antigen induces an immune response in humans having colon carcinoma which is expressed as cell mediated immunity,

said kit comprising a first container adapted to contain an antibody to said antigen or an active component thereof, said second antibody being labeled with a reporter molecule capable of giving a detectable signal.

31. (previously presented) A kit according to claim 30 wherein the reporter molecule is a radioisotope, an enzyme, a fluorescent molecule, a chemiluminescent molecule or a bioluminescent molecule.

32. (previously presented) A kit according to claim 30 wherein the reporter molecule is an enzyme.

33. (currently amended) A kit according to claim 30 ~~32~~ wherein the kit further comprises a third container adapted to contain a substrate for the enzyme.

34. (currently amended) A compartmentalized kit for detection of a human colon carcinoma-associated antigen, wherein the antigen has the following characteristics:

- (a) ~~said antigen is purified to the extent that the membrane fractions are free of HL-A antigen and are substantially free from non-immunogenic glycoprotein fractions~~ said antigen is purified to the extent that the membrane fractions are free of HL-A antigen and are substantially free from non-immunogenic glycoprotein fractions;
- (b) said antigen is not detectable on normal colon cancer free human tissues;
- (c) said antigen is not detectable on human carcinoma cells other than colon carcinoma cells;
- (d) said antigen is specifically immunogenic in humans; and
- (e) said antigen induces an immune response in humans having colon carcinoma which is expressed as cell mediated immunity,

said kit comprising a first container adapted to contain monoclonal antibody 31.1 (ATCC HB-12314) to said antigen and a second container adapted to contain a second antibody to said antigen or an active component thereof, said second antibody being labeled with a reporter molecule capable of giving a detectable signal.

35. (previously presented) A kit according to claim 34 wherein the reporter molecule is a radioisotope, an enzyme, a fluorescent molecule, a chemiluminescent molecule or a bioluminescent molecule.

36. (currently amended) A kit according to claim ~~32~~ 34 wherein the reporter molecule is an enzyme.

37. (currently amended) A kit according to claim 33 36 wherein the kit further comprises a third container adapted to contain a substrate for the enzyme.

38. (currently amended) A compartmentalized kit for detection of a human colon carcinoma-associated antigen, wherein the antigen has the following characteristics:

- (a) ~~said antigen is purified to the extent that the membrane fractions are free of HL-A antigen and are substantially free from non-immunogenic glycoprotein fractions~~ said antigen is purified to the extent that the membrane fractions are free of HL-A antigen and are substantially free from non-immunogenic glycoprotein fractions;
- (b) said antigen is not detectable on normal colon cancer free human tissues;
- (c) said antigen is not detectable on human carcinoma cells other than colon carcinoma cells;
- (d) said antigen is specifically immunogenic in humans; and
- (e) said antigen induces an immune response in humans having colon carcinoma which is expressed as cell mediated immunity,

said kit comprising a first container adapted to contain monoclonal antibody 33.28 (ATCC HB-12315) to said antigen and a second container adapted to contain a second antibody to said antigen or an active component thereof, said second antibody being labeled with a reporter molecule capable of giving a detectable signal.

40. (previously presented) A kit according to claim 38 wherein the reporter molecule is an enzyme.

41. (previously presented) A kit according to claim 38 wherein the kit further comprises a third container adapted to contain a substrate for the enzyme.



42. (previously presented) The monoclonal antibody of claim 1 which is a chimeric antibody.

43. (previously presented) The chimeric antibody according to claim 42 which is a chimeric mouse/human antibody Chi #1 (ATCC CRL-12316).

44. (previously presented) The chimeric antibody according to claim 42 wherein said colon carcinoma-associated antigen is a protein having a molecular weight of 72 kilodalton.

45. (previously presented) A composition comprising the chimeric antibody according to claim 42 in combination with a pharmaceutically acceptable carrier.

46. (previously presented) A monoclonal antibody against the chimeric antibody of claim 42.

47. (previously presented) An immunoassay for detecting a colon carcinoma-associated antigen which binds to the mouse/human chimeric antibody Chi # 1 (ATCC CRL-12316) of claim 42 in a sample comprising:

(a) contacting said sample with the antibody according to claim 42; and

(b) detecting said antigen by detecting the binding of said antibody to the purified colon carcinoma-associated protein antigen.

48. (previously presented) A method for diagnosing colon cancer in humans comprising:

(a) removing a histological specimen from a patient suspected of having a colon carcinoma;

(b) contacting the specimen with a chimeric antibody which binds to an antigen according to claim 1;

(c) staining the specimen with an immunohistochemical stain; and

(d) detecting the presence of the antigen-antibody complex by the stain.

49. (previously presented) A method for diagnosing colon cancer in humans comprising:

(a) removing a histological specimen from a patient suspected of having a colon carcinoma;

(b) contacting the specimen with mouse/human chimeric antibody which binds to an antigen which binds to mouse/human chimeric antibody Chi # 1 (ATCC CRL-12316);

(c) staining the specimen with an immunohistochemical stain; and

(d) detecting the presence of the antigen-antibody complex by the stain.

50. (previously presented) A kit for the immunohistochemical detection of colon carcinoma comprising:

(a) mouse/human chimeric antibody Chi #1 (ATCC CRL-12316);

(b) reagents for immunoperoxidase and secondary antibody;

(c) immunoperoxidase; and

(d) colorizing reagents.